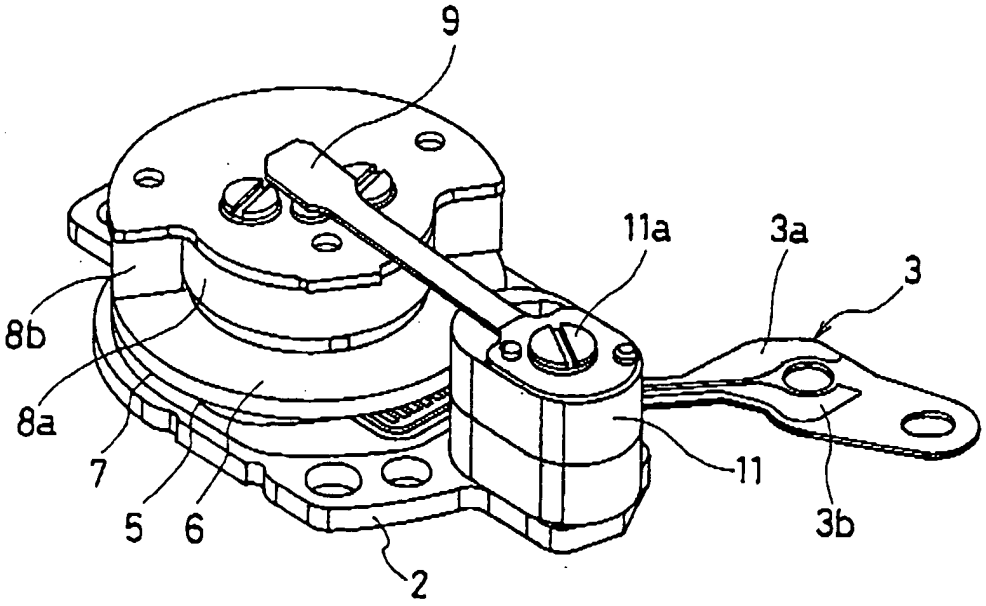
FIG. 1



45 figs.

FIG. 2

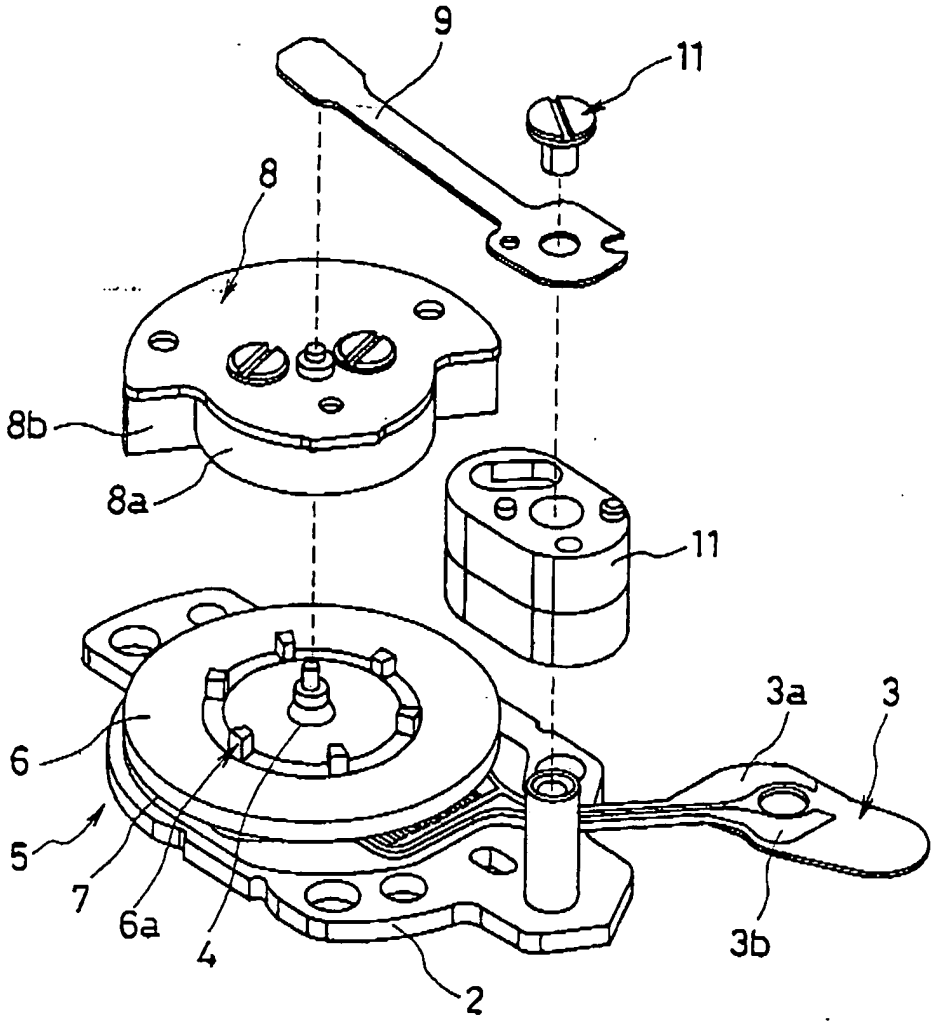


FIG. 3A

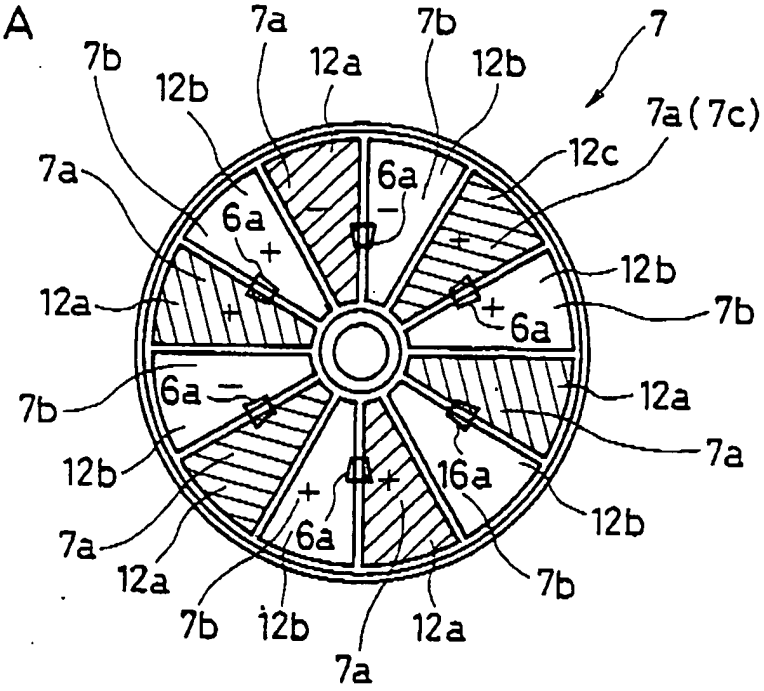


FIG. 3B

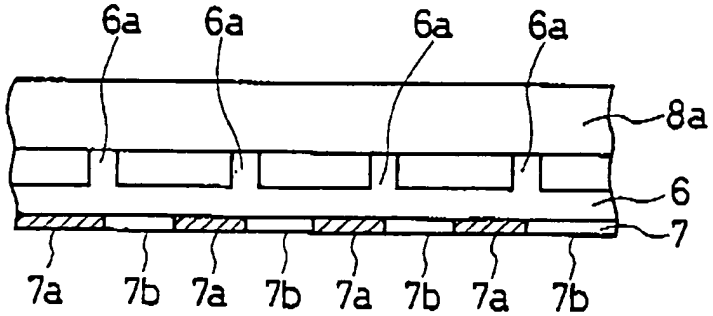


FIG. 3C

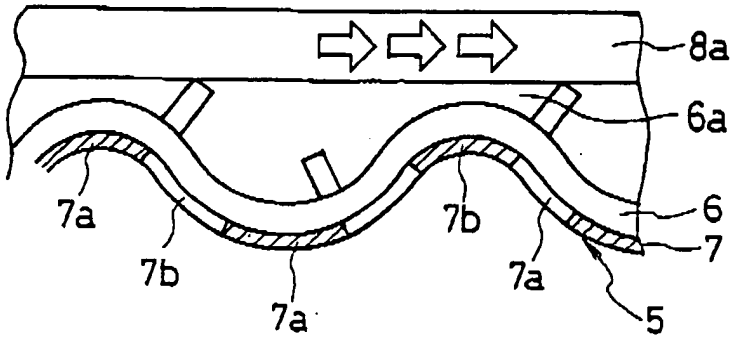


FIG. 4A

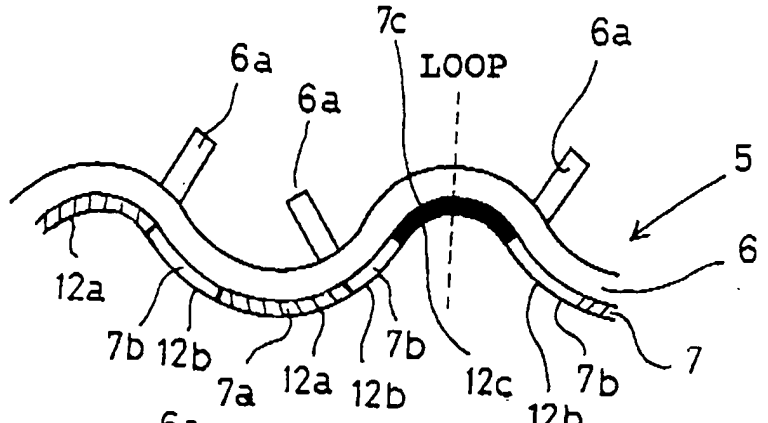

7c
LOOP
6a
6a
6a
5
6
12a
7b
12b
7a
12a
12b
7b
12c
12b
7b
7

FIG. 4B

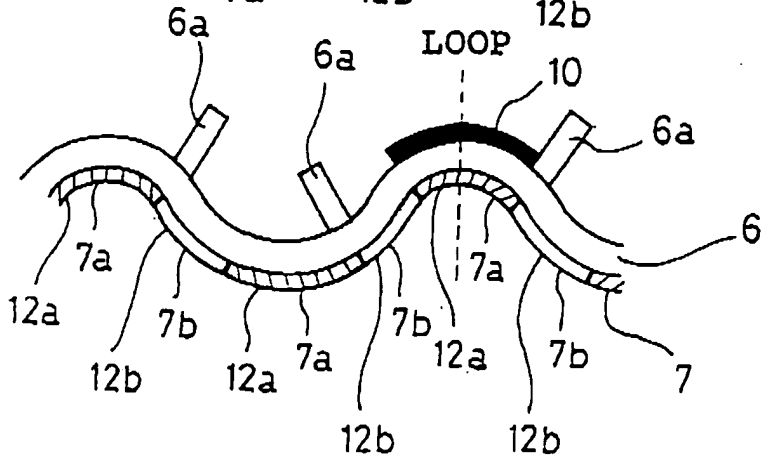

6a
6a
LOOP
10
6a
6
7a
12a
7b
12b
7b
7a
12a
12b
7a
12a
7b
12b
7b
7
12b
12b

FIG.5A

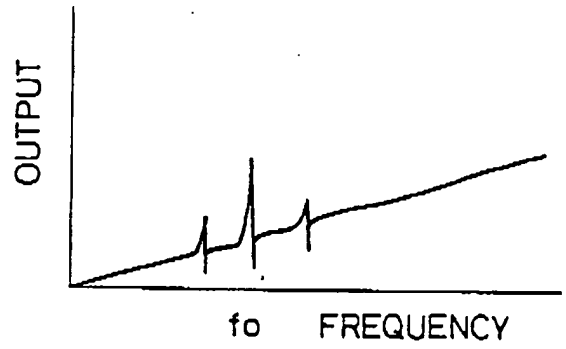


FIG.5B

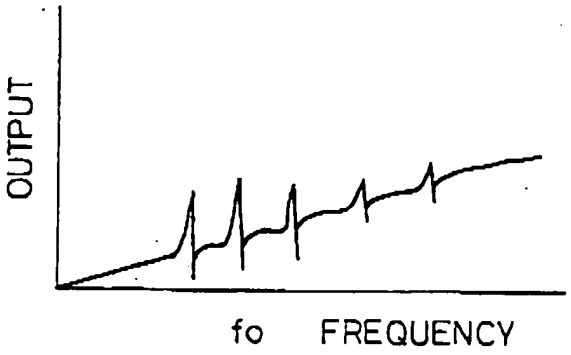


FIG. 6A

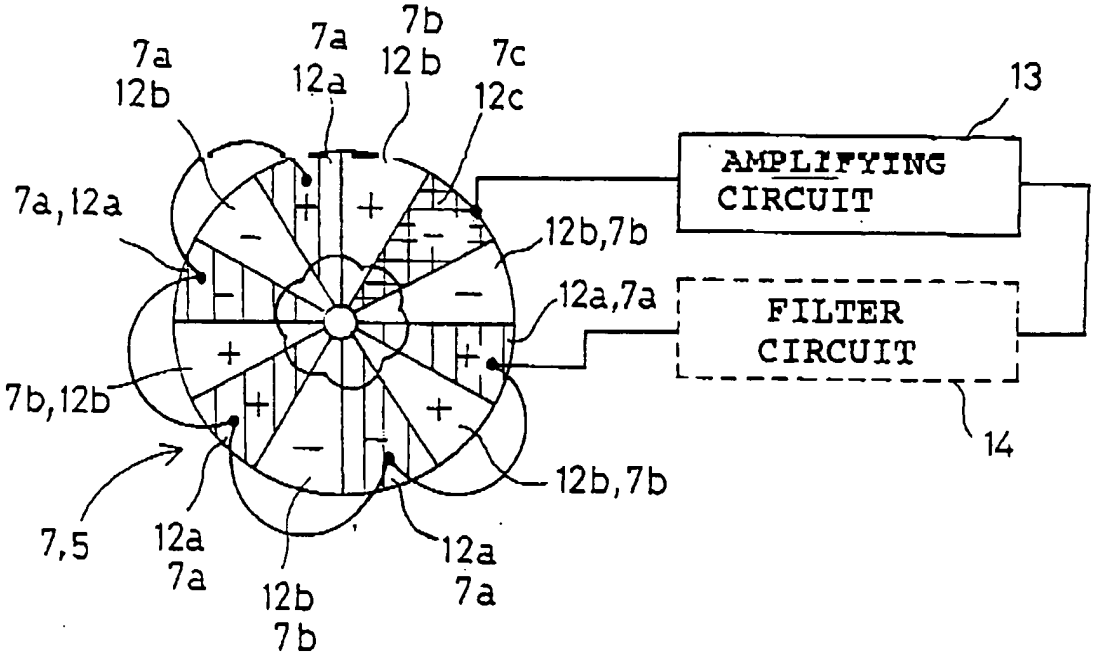

7a
12b
7a
12a
7b
12b
7c
12c
13
AMPLIFYING CIRCUIT
7a,12a
12b,7b
12a,7a
FILTER CIRCUIT
7b,12b
14
12b,7b
7,5
12a
7a
12b
7b
12a
7a

FIG. 6B

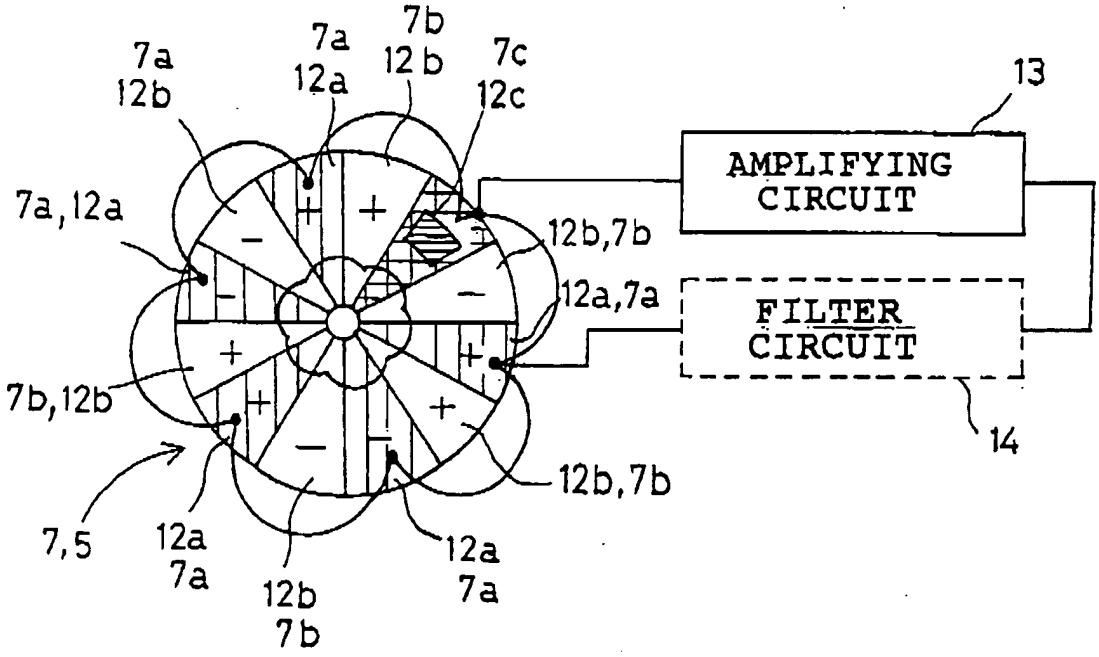

7a
12b
7a
12a
7b
12b
7c
12c
13
AMPLIFYING CIRCUIT
7a,12a
12b,7b
12a,7a
FILTER CIRCUIT
7b,12b
14
12b,7b
7,5
12a
7a
12b
7b
12a
7a

FIG. 7

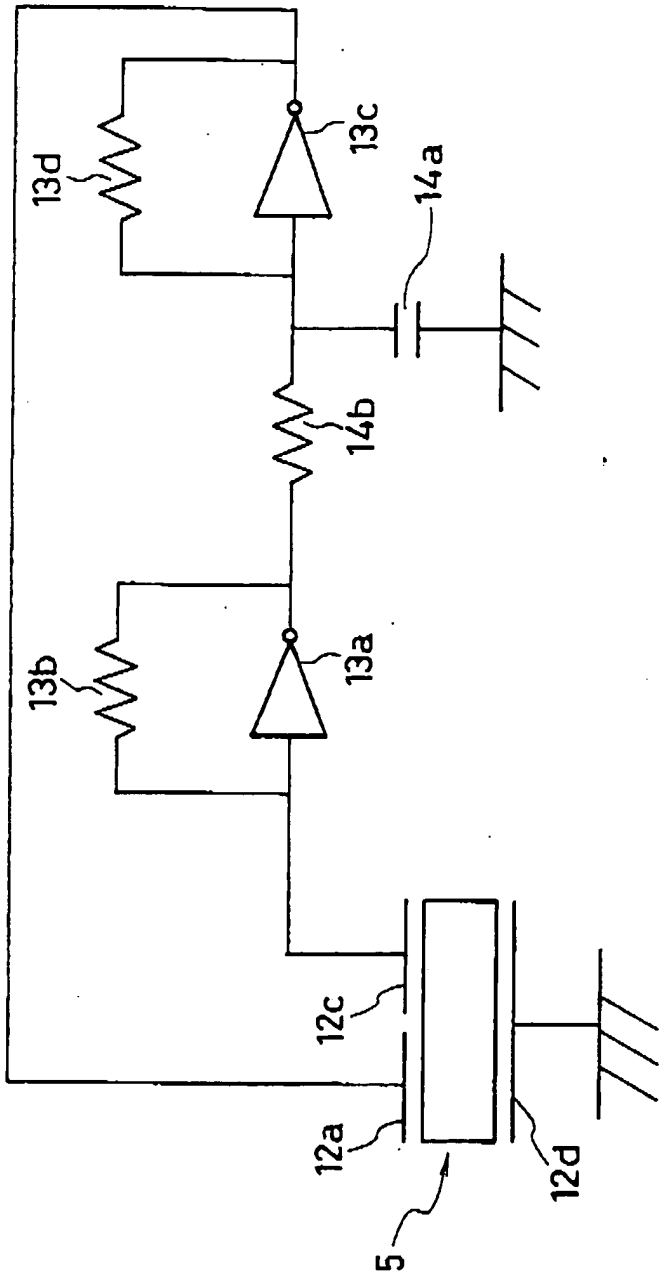


FIG. 8A

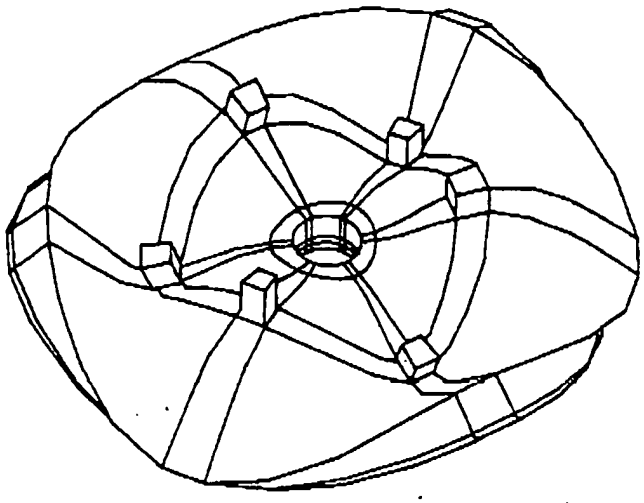


FIG. 8B

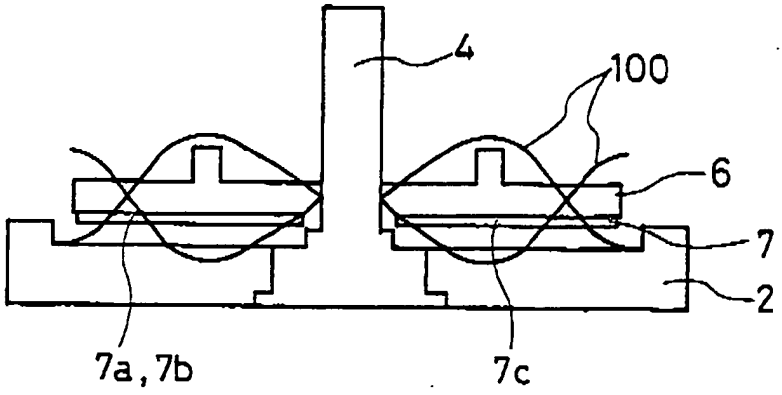


FIG. 9

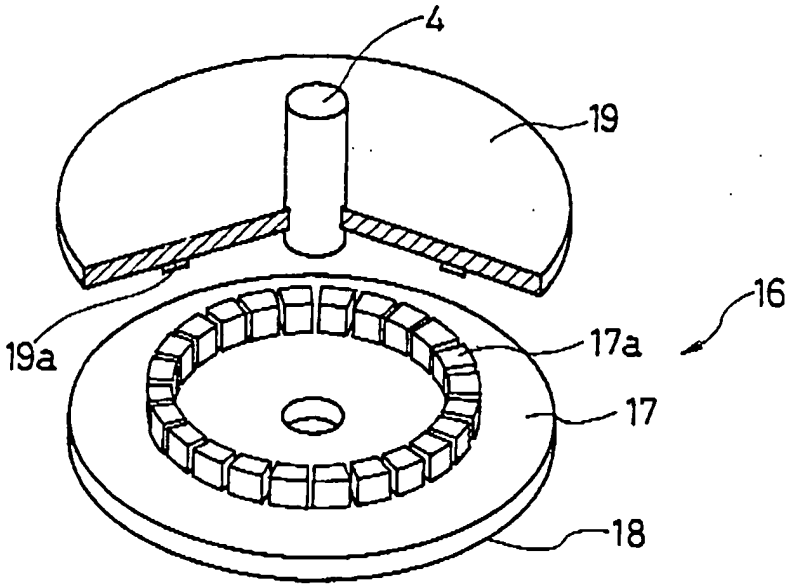


FIG.10

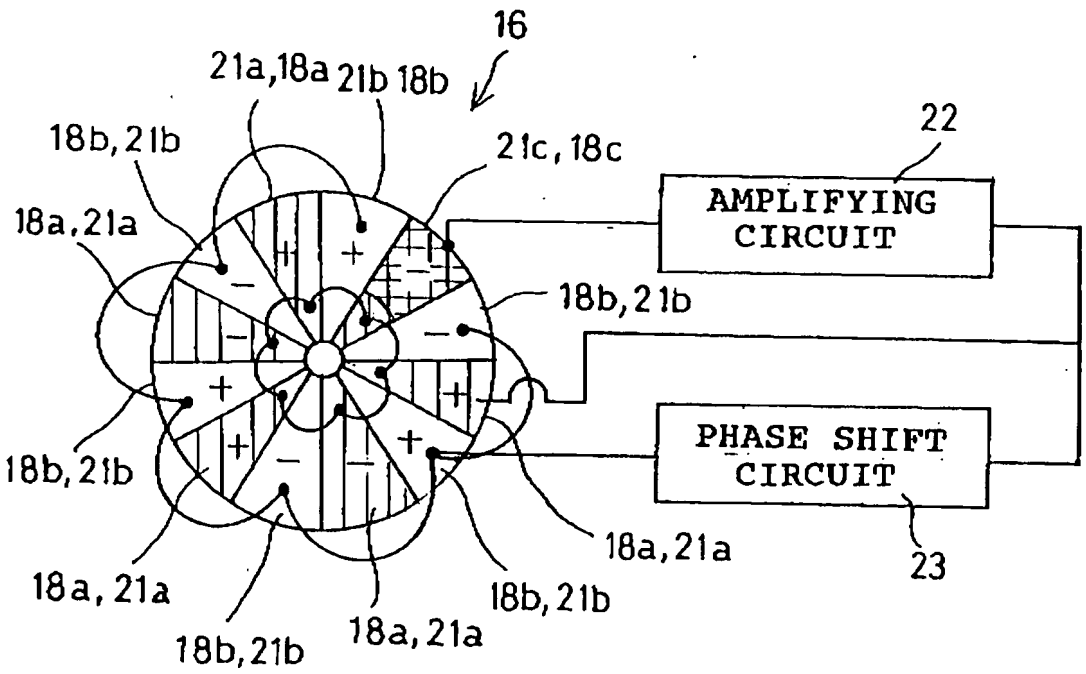

16
21a,18a
21b
18b
18b,21b
21c,18c
22
AMPLIFYING CIRCUIT
18a,21a
18b,21b
PHASE SHIFT CIRCUIT
23
18b,21b
18a,21a
18a,21a
18b,21b
18a,21a
18b,21b

FIG. 11

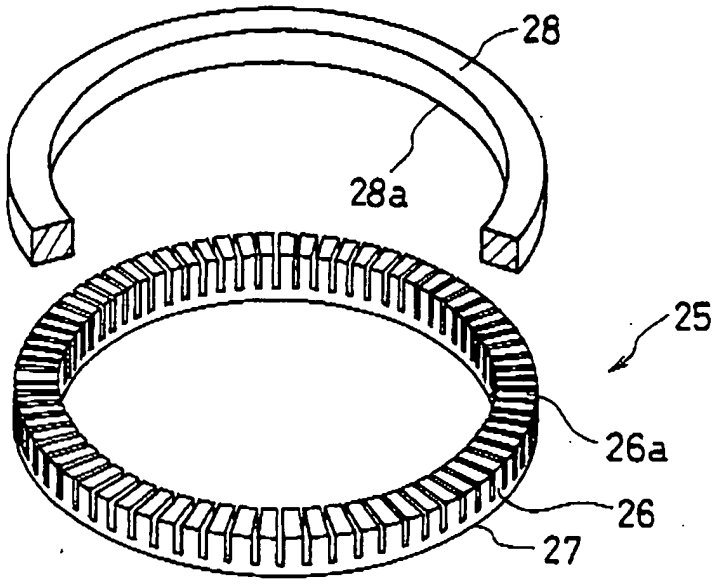

28
28a
25
26a
26
27

FIG. 12

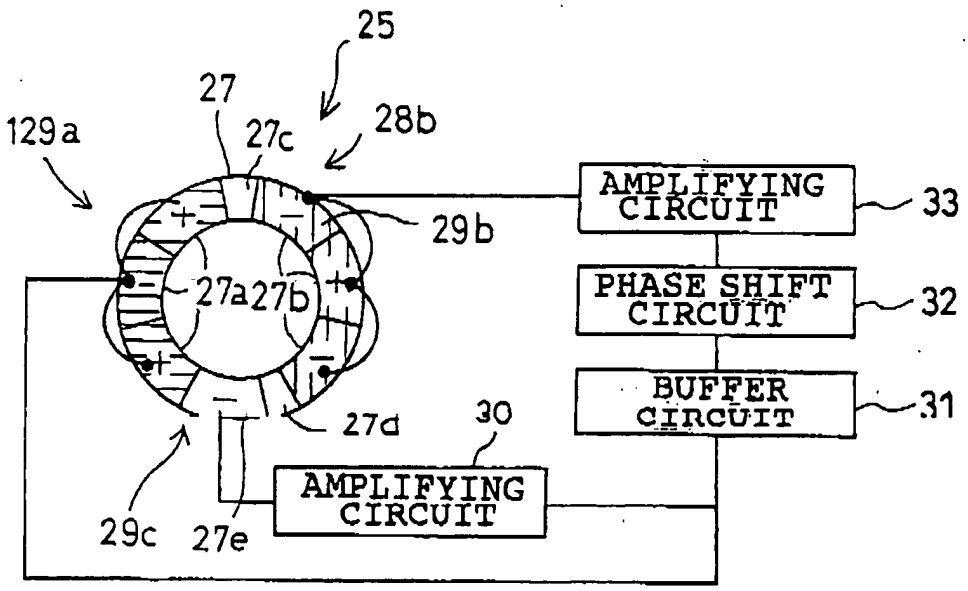

25
27
28b
129a
27c
AMPLIFYING CIRCUIT
33
29b
PHASE SHIFT CIRCUIT
32
27a
27b
BUFFER CIRCUIT
31
27d
30
AMPLIFYING CIRCUIT
29c
27e

FIG.13

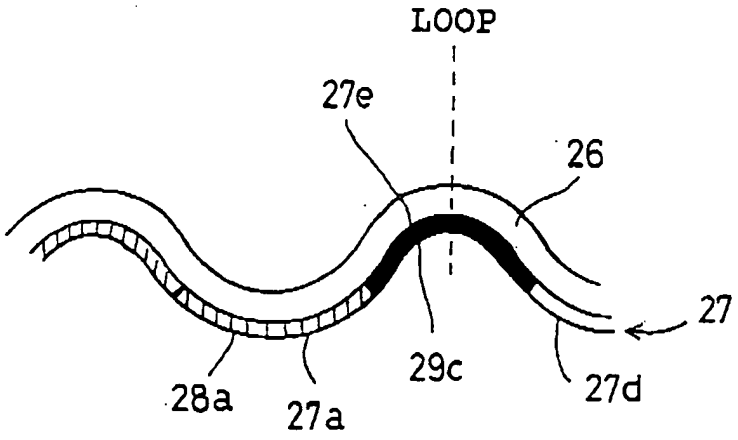


FIG.14

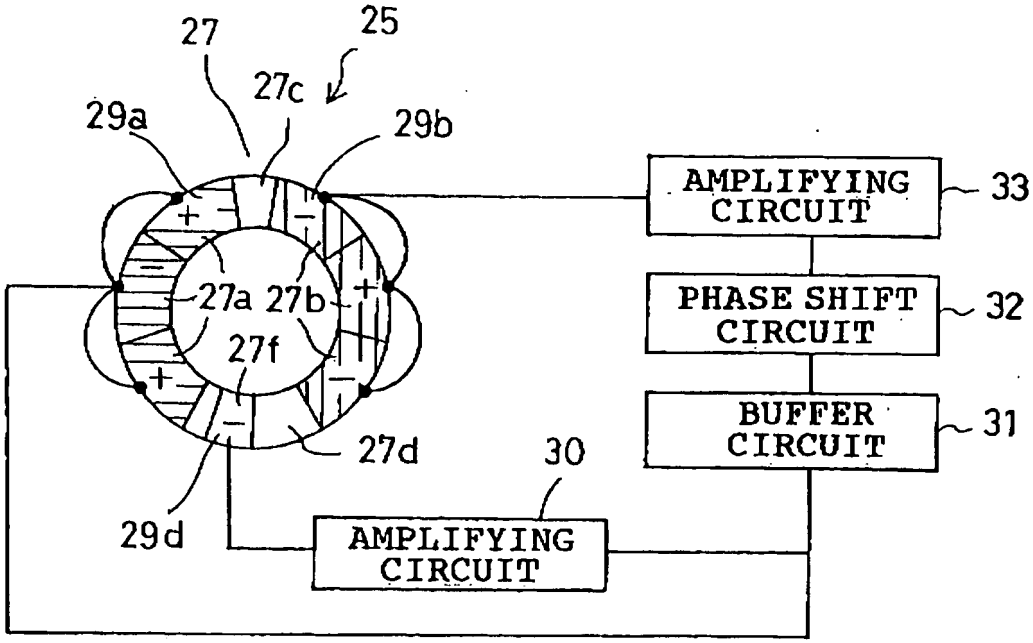


FIG.15

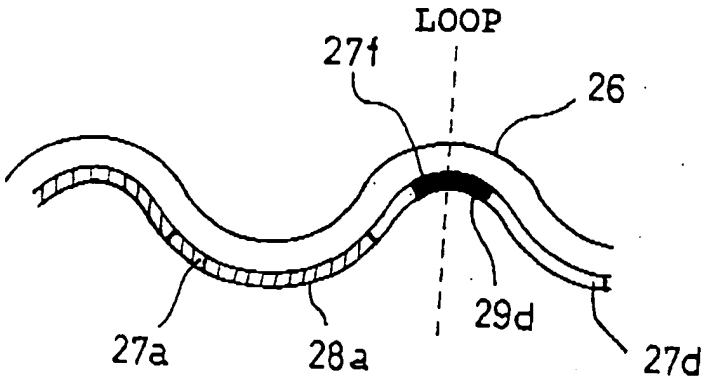


FIG.16

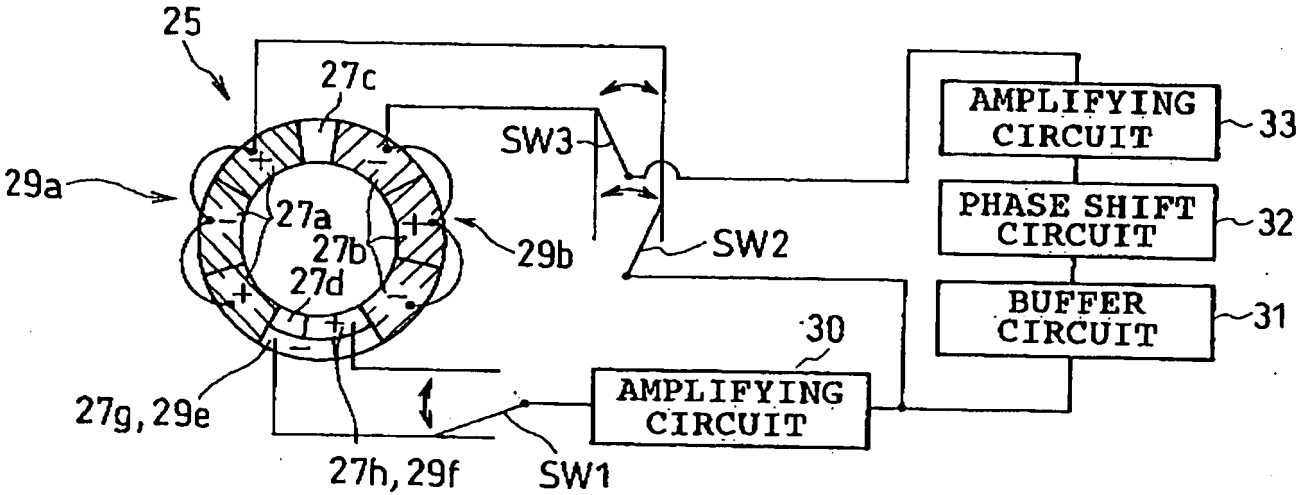


FIG.17

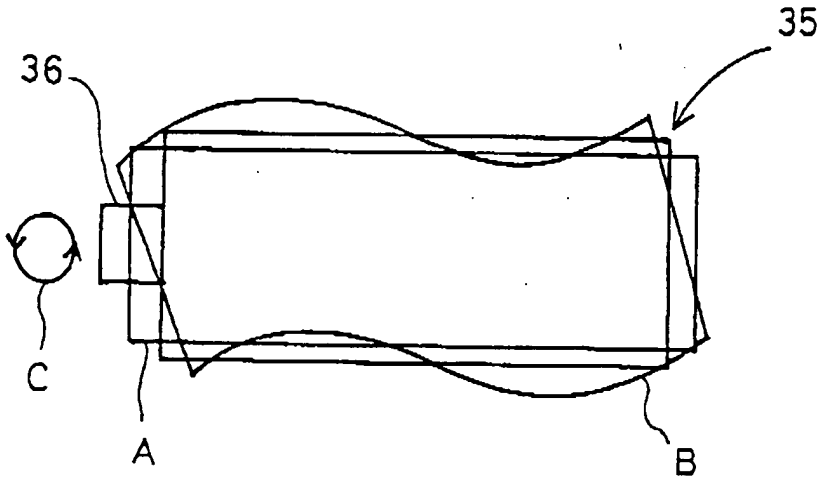

35
36
C
A
B

FIG.18

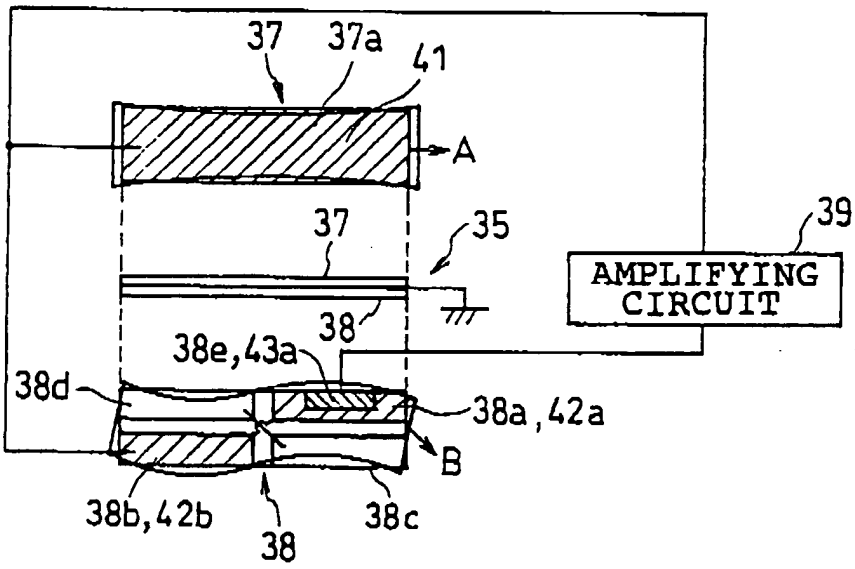

37
37a
41
A
37
35
39
AMPLIFYING CIRCUIT
38
38e,43a
38d
38a,42a
B
38b,42b
38
38c

FIG. 19

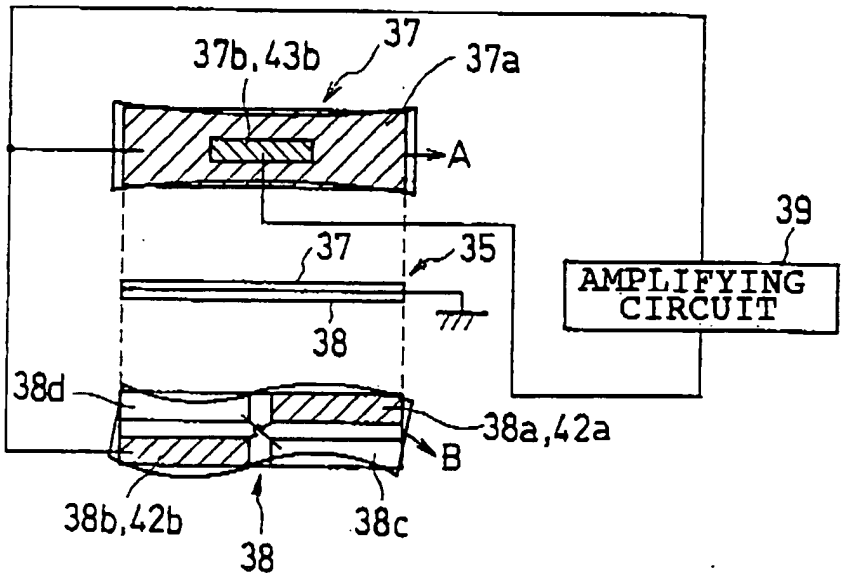

37b,43b
37
37a
A
39
37
35
AMPLIFYING CIRCUIT
38
38d
38a,42a
B
38b,42b
38
38c

FIG. 20

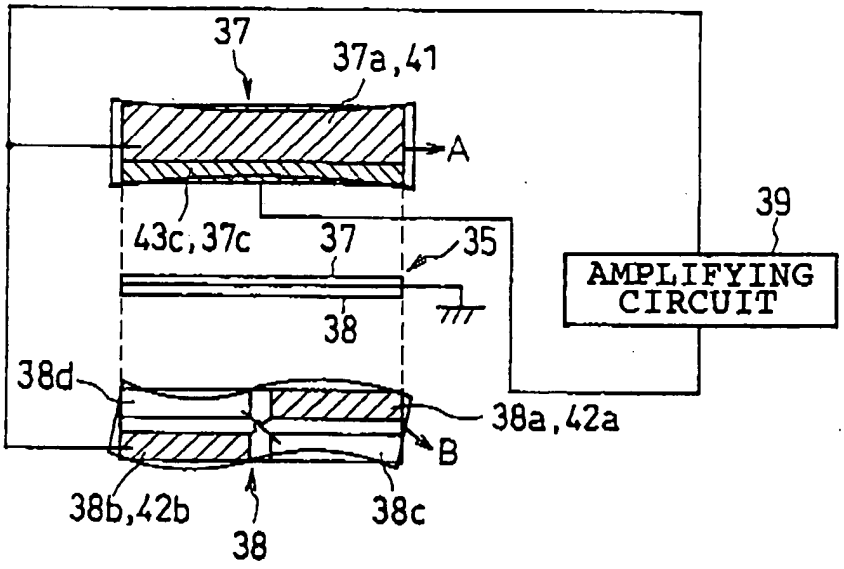

37
37a,41
A
39
43c,37c
37
35
AMPLIFYING CIRCUIT
38
38d
38a,42a
B
38b,42b
38
38c

FIG. 21

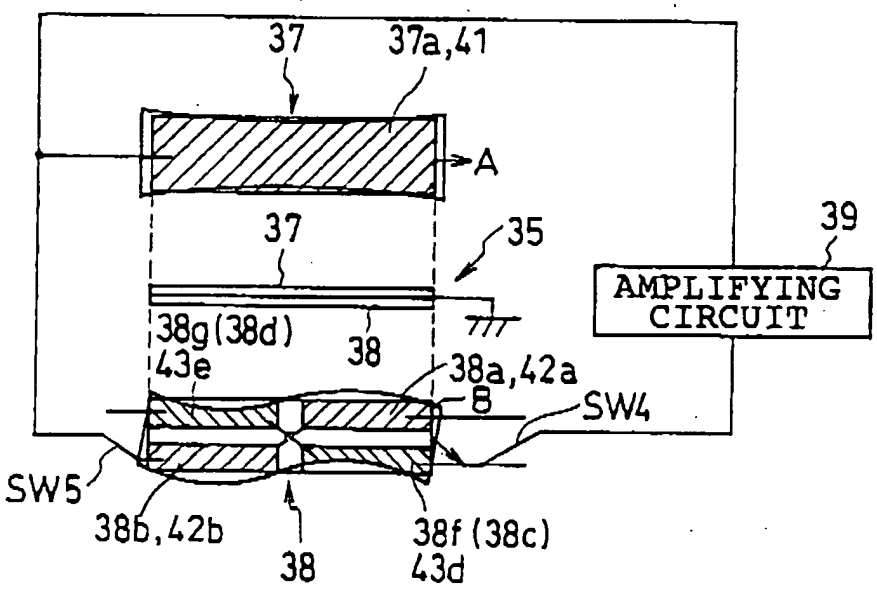

37
37a,41
A
37
35
39
AMPLIFYING CIRCUIT
38g(38d)
43e
38
38a,42a
B
SW4
SW5
38b,42b
38
38f(38c)
43d

FIG. 22

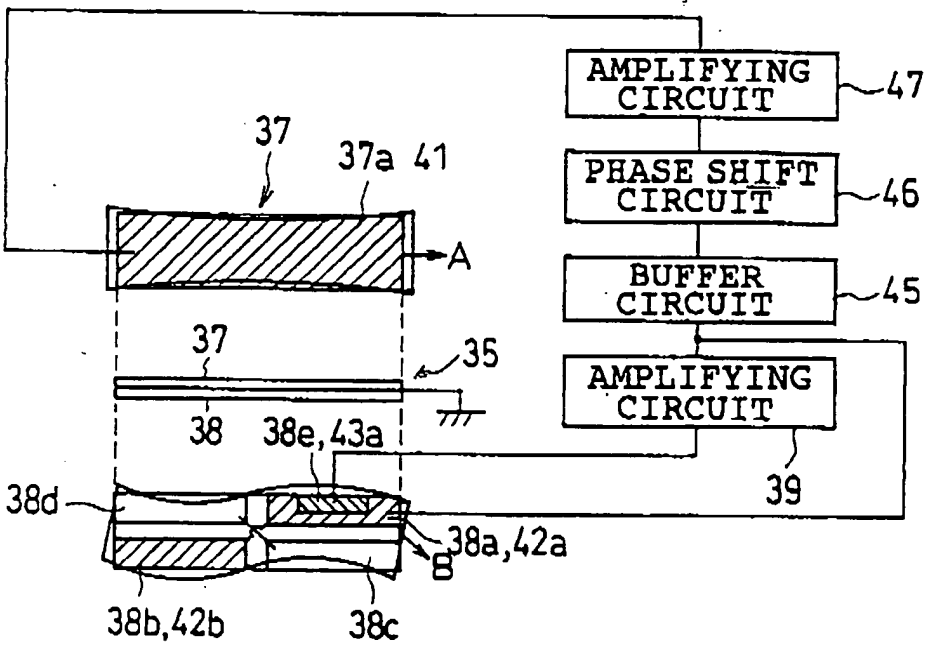

AMPLIFYING CIRCUIT
47
PHASE SHIFT CIRCUIT
46
BUFFER CIRCUIT
45
AMPLIFYING CIRCUIT
39
37
37a
41
A
37
35
38
38e, 43a
38d
38a, 42a
B
38b, 42b
38c

FIG. 23

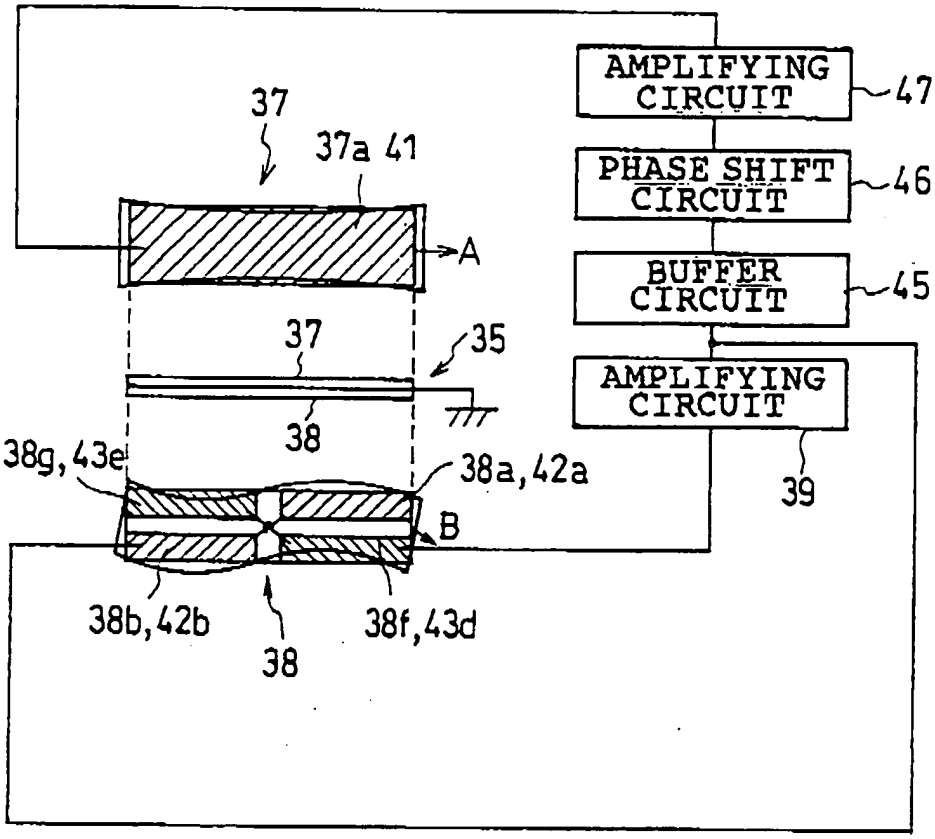

AMPLIFYING CIRCUIT
47
PHASE SHIFT CIRCUIT
46
BUFFER CIRCUIT
45
AMPLIFYING CIRCUIT
39
37
37a 41
A
37
35
38
38g, 43e
38a, 42a
B
38b, 42b
38
38f, 43d

FIG. 24

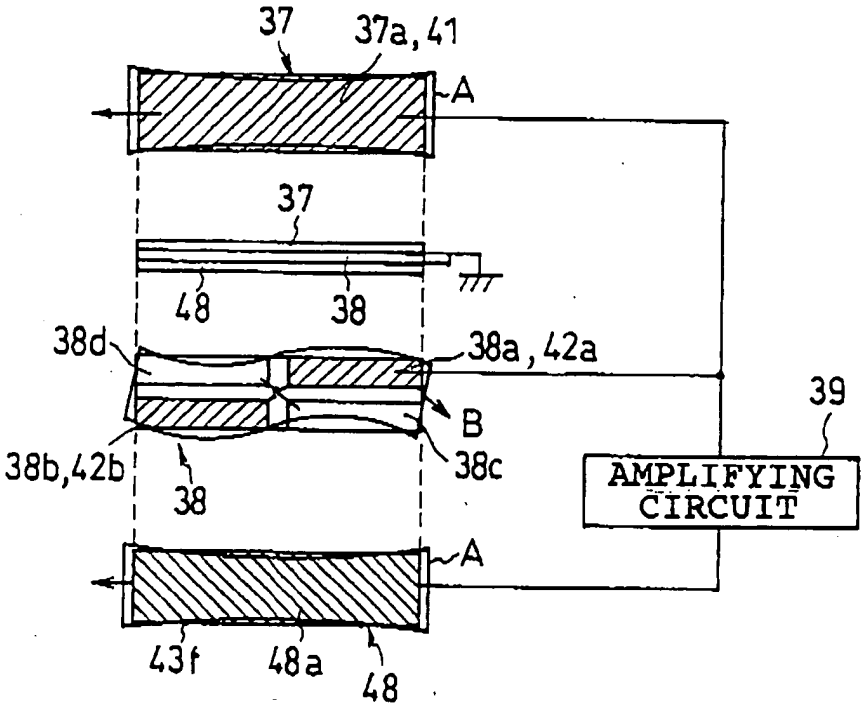

37
37a, 41
A
37
48
38
38d
38a, 42a
B
38b, 42b
38
38c
39
AMPLIFYING CIRCUIT
A
43f
48a
48

FIG. 25

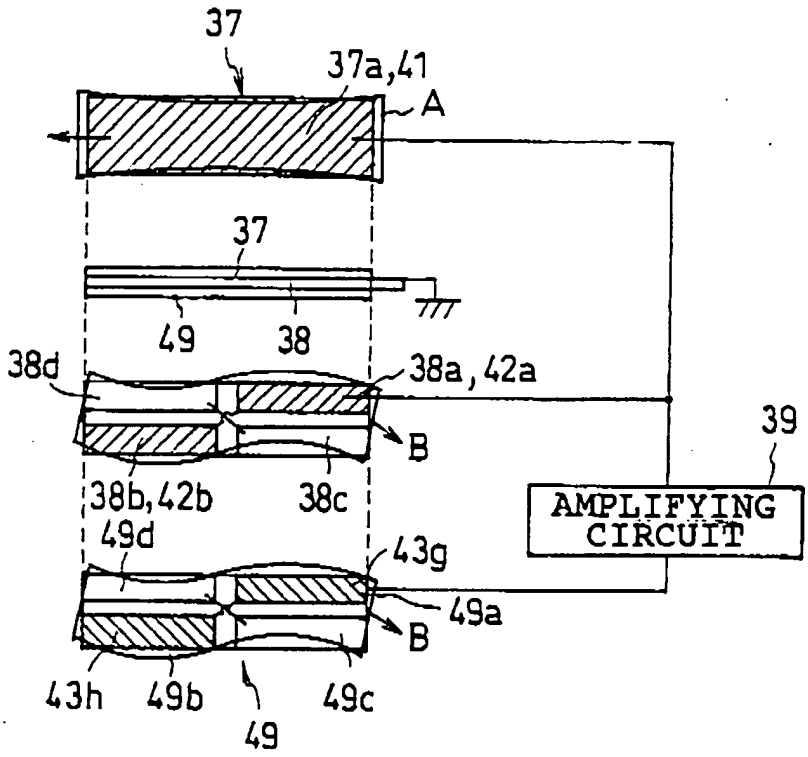

37
37a,41
A
37
49
38
38d
38a, 42a
B
39
AMPLIFYING CIRCUIT
38b, 42b
38c
49d
43g
49a
B
43h
49b
49
49c

FIG. 26

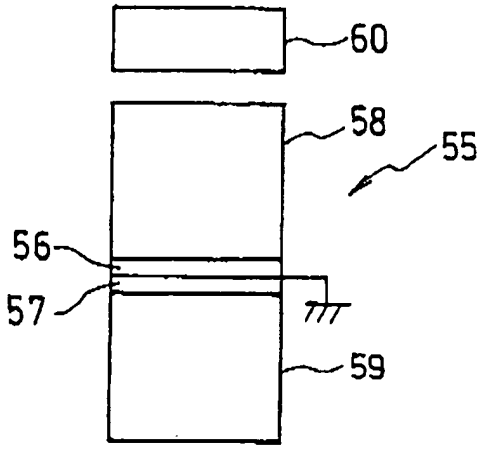

60
58
55
56
57
59

FIG. 27

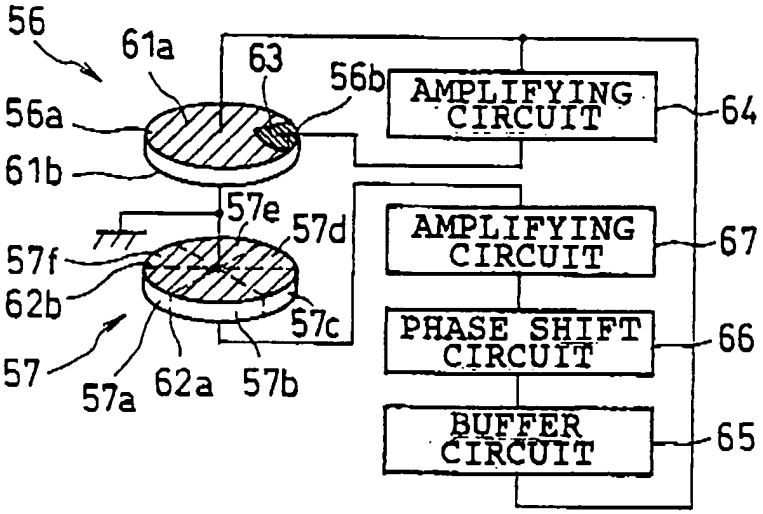

56
61a
63
56b
56a
61b
57e
57d
57f
62b
57c
57
57a
62a
57b
AMPLIFYING CIRCUIT
64
AMPLIFYING CIRCUIT
67
PHASE SHIFT CIRCUIT
66
BUFFER CIRCUIT
65

FIG. 28

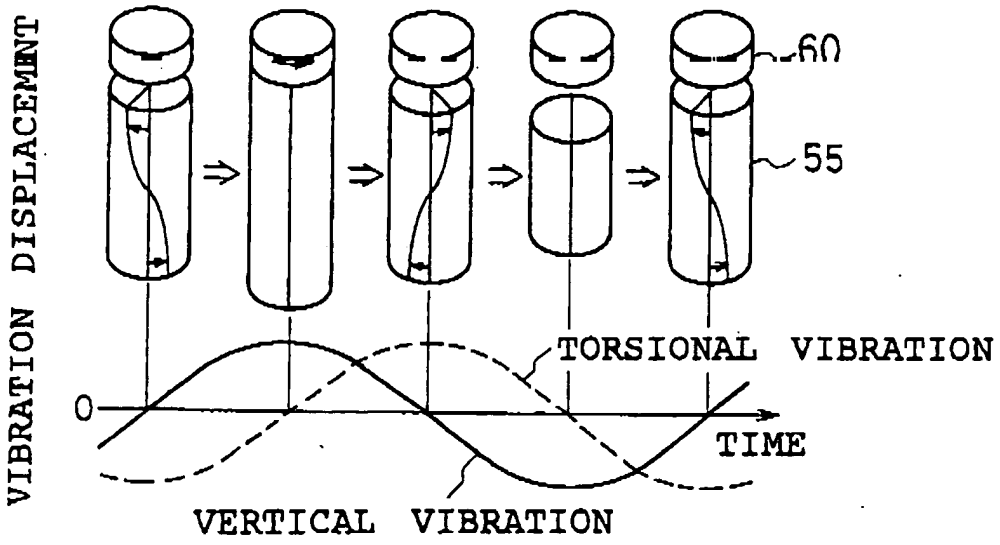

VIBRATION DISPLACEMENT
60
55
TORSIONAL VIBRATION
0
TIME
VERTICAL VIBRATION

FIG. 29A

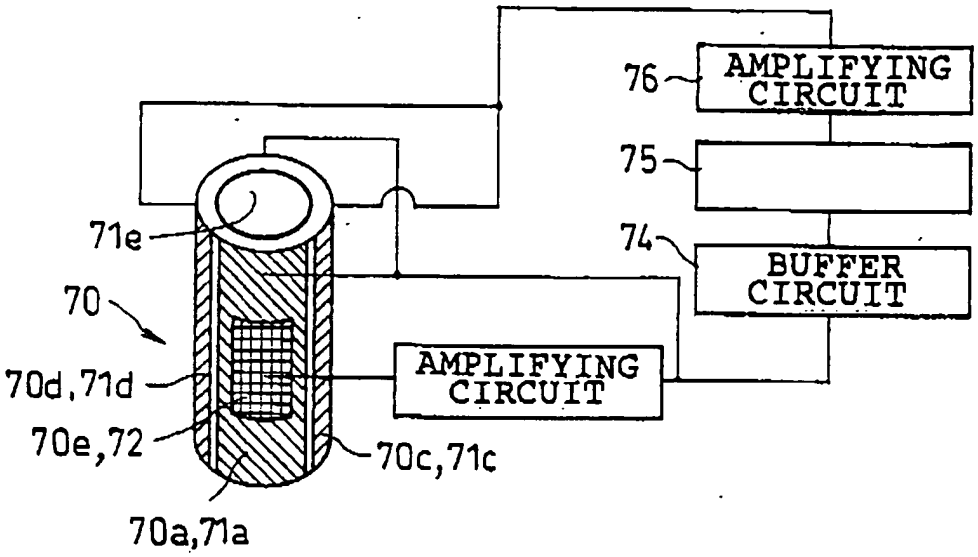


FIG. 29B

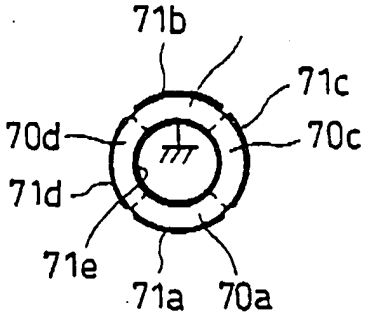


FIG. 30A

FIG. 30B

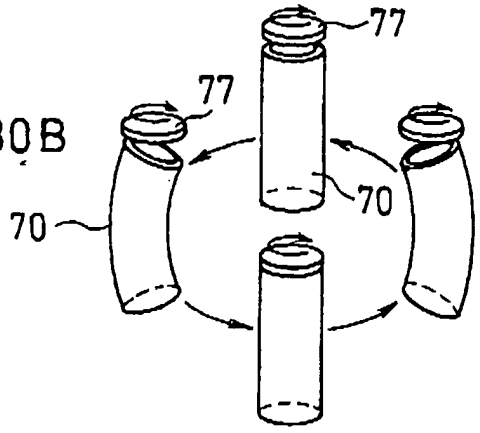


FIG. 30D

FIG. 30C

FIG. 31A

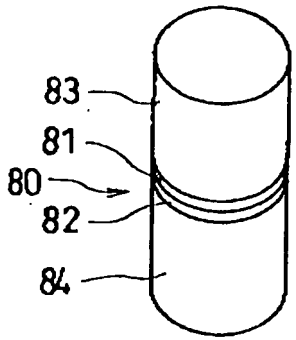


FIG. 31B

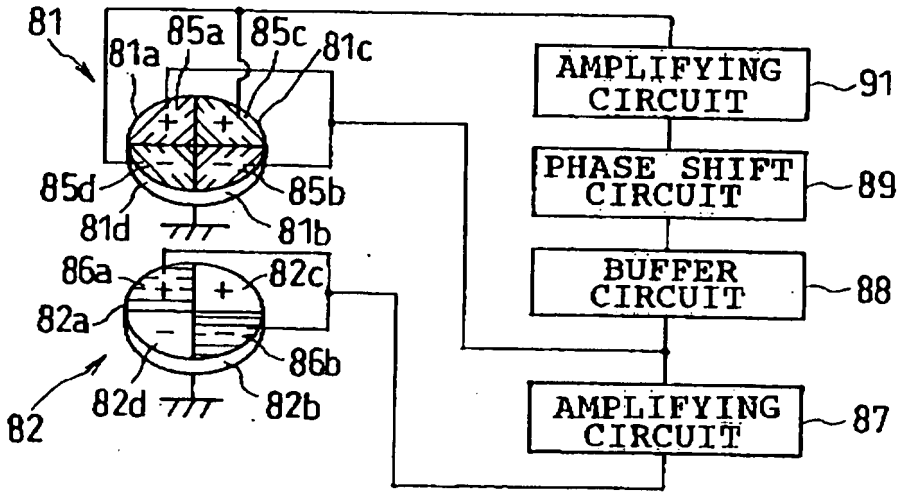


FIG. 32

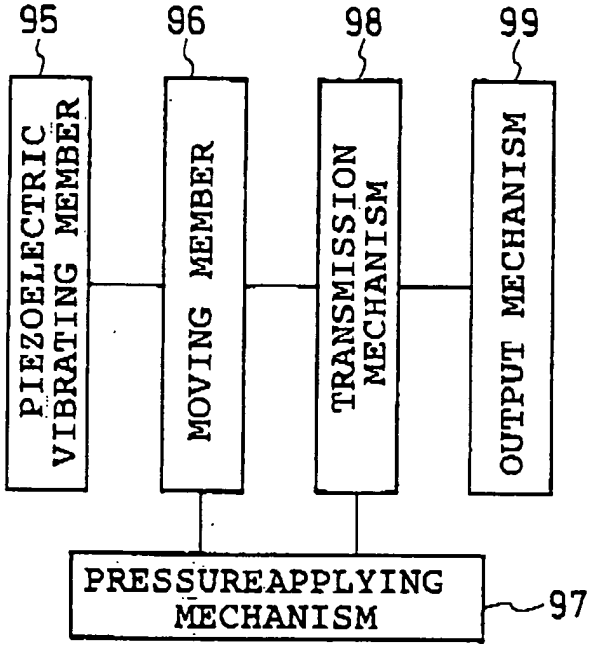


FIG. 33
PRIOR ART

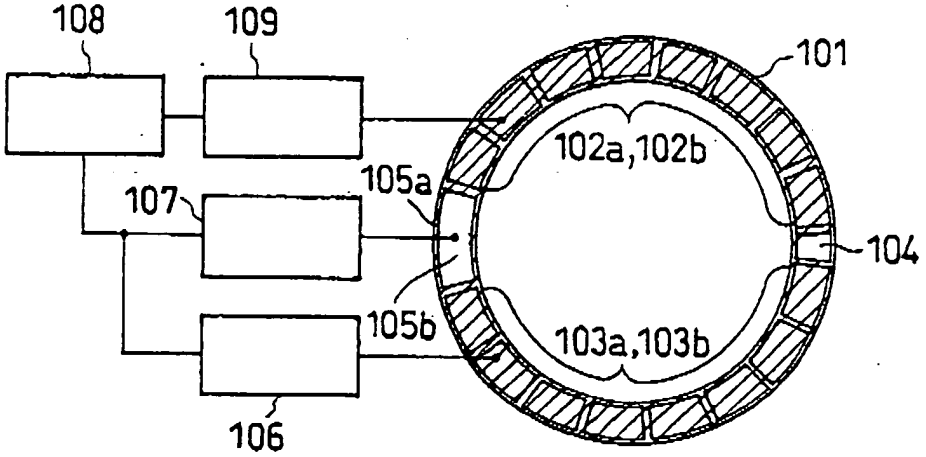


FIG.34
PRIOR ART